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CHEMISTRY AT THE BRITISH ASSOCIATION.

THE address of Dr. Ludwig Mond, President of the Chemical Section at the Liverpool meeting of the British Association, was on the History of the Manufacture of Chlorin. After sketching the earlier methods, Dr. Mond treated very fully the Weldon and the Deacon processes, and then gave the details of his own work on the recovery of the chlorin in the Solvay process of soda-manufacture. In outline, Mond's process is as follows: The ammonium chlorid, obtained in a very pure condition by crystallization from the refrigerated liquors of the Solvay process, is passed as a vapor over hot pills of a mixture of magnesia, potassium chlorid and china clay. Ammonia is given off and condensed, while the chlorin unites with the magnesia. The pills are then heated more strongly and hot air passed over them; the magnesia is regenerated and the chlorin given off, to be absorbed by lime for bleaching powder. By this method, which has been in commercial operation for several years at Winnington, the Solvay process is able to compete with the LeBlanc process in the manufacture not only of soda, but of bleaching powder. In conclusion Dr. Mond referred to promising developments along the line of the manufacture of chlorin by electrolysis.

The paper which attracted the most attention in the Chemical Section was that of Prof. Ramsay on Helium. It was mainly devoted to his diffusion experiments, already described in this JOURNAL. He said he was about to carry out experiments on oxygen and nitrogen, in order to determine if they can be resolved by the diffusion process into constituents of slightly different density. In the course of the discussion which followed the paper, Dr. Mond spoke of argon and helium as being a kind of matter different from the ordinary chemical elements, and having no chemical affinities and characteristics. He did not consider it

improbable that there might be a whole series of substances not belonging to chemistry, whose existence seemed not only to upset the fundamental law of chemistry, Dalton's Law, but also to cast doubt on the present fundamental notions regarding physical science.

It may be noted that the idea that all the atoms of an element may not have the same weight is not a new one first broached in the case of helium, but it was some years ago suggested by Prof. Crookes in connection with his work on rare earths.

Prof. Dewar read a paper on Low Temperature Research, urging especially the necessity of physical investigation. He described a very accurate method of making specific gravity determinations in liquid oxygen.

Dr. F. Hurter discussed the manufacture of chlorin by means of nitric acid, and said that in spite of its theoretical advantages it had not proved a commercial success, nor did it give promise for the future.

Prof. Liebreich, of Berlin, repeated a series of experiments before the Section with a view to proving the diminution of chemical action resulting from the limitations of space. He advanced the general propositions that liquids, in proportion as they are placed in confined spaces, acquire by equilibric reactions the properties of solids; and that friction in such fluids has a bearing of considerable importance on chemical reaction.

Dr. William Newton, of London, described very fully the nitrate deposits of Chili, and deprecated very strongly the present crude and wasteful methods of mining and working up the products.

One of the most interesting papers was by Sir Henry Roscoe on Chemical Education in England and Germany. England is feeling very keenly the fact that Germany is along most lines monopolizing the chemical industry of the world. While larger

government endowments for technical education (at present about \$3,500,000 a year), especially for research, are desirable, the author of the paper, as well as those who discussed it, agreed that the greatest need is the improvement of the system of secondary education.

J. L. H.

RELATIONS OF THE LEMURES, PRIMATES AND UNGULATES.

PROF. A. A. W. HUBRECHT has contributed to the second volume of the Gegenbaur *Festschrift* an important memoir upon the placentation of *Tarsius*, in which he reaches the conclusion that this animal should be entirely removed from the Lemuroidea, where it has always stood hitherto, and placed with the true Primates or Anthropeidea. The following is a recapitulation of his conclusions:

1. Numerous peculiarities in the formation of the blastocyst of *Tarsius spectrum* show it to be more closely related to monkeys and man than to any other mammalian genus.

2. The ventral stalk in the blastocyst of man and monkeys, with the ontogenesis of which we were up to now most imperfectly acquainted, is explained both onto- and phylogenetically by the facts which we observe in *Tarsius*.

3. By its dentition *Tarsius* takes an intermediate place between the monkeys and mesozoic Insectivora; the upper molars are purely tritubercular, the lower ones tuberculo-sectorial with well-developed pr^a , me^a , pa^a , hy^a and en^a .

4. Among fossil Mammals the genus *Anaptomorphus* Cope takes up an intermediate position between *Tarsius* and man. Cope was thereby actuated to choose the specific name *homunculus*.

5. The Mammalian order of the Primates should henceforth be looked upon as fully distinct from that of the Lemures; the former reaches back into the Mesozoic Per-

iod and has been independent of all the other Mammalian orders through the whole Tertiaries.

6. To the order of Primates belong (1) man, (2) the monkeys, (3) the two genera *Tarsius* (recent) and *Anaptomorphus* (fossil, lower Eocene), which have been hitherto classified with the Lemures.

7. Undoubtedly a greater number of fossil genera will have to be classed with the Primates; great prudence should, however, prevail before we assign that place to any of them. It is better to wait for more complete skeletons before we attempt to establish any sharp distinction between fossil Primates and Lemures.

8. The Lemures (inclusive of Cope's extinct Mesodonta) have in their turn close relationships to numerous Primitive Tertiary mammalian types, such as the unspecialized Ungulata, Condylarthra, Creodonts, etc. The placentation and the blastocyst are in the Lemures fundamentally different from those of *Tarsius*, but are at the same time undoubtedly phylogenetically comparable to those of the latter mammals.

9. The placentation and the formation of the blastocyst in the Primates cannot be derived from what we find in the Lemures. They can, however, without difficulty be brought into genetic relationship with processes such as we notice in central Insectivorous genera, such as *Erinaceus*.

CURRENT NOTES ON PHYSIOGRAPHY.

GRAPE BELT OF WESTERN NEW YORK.

GRAPE raising is an important industry along the Erie shore of western New York, and it appears that, in addition to the favoring climatic influences of the lake, the gravelly bars of the ancient expanded lake offer the best soils for vineyards, as described by Tarr (Bull. 109, Cornell Univ. Agr. Exp. Station). These ancient lake shores lie on the Erie plain, an inner lowland denuded on the weak lower Devonian